



June 30, 1864

*Cypripedium*,  
*spectabile*.

Sketch book of W.A. Johnson (1816-80) given by his son,  
Dr. A.J. Johnson, to Harvey Cushing & by him to the Acad. Library.  
51 leaves of colored sketches, ca 1864-9. W.A.J.

Wetmore, June 1: 1885  
on the Railway, in dry, hard, high, clay.



Petal.

Magnified.



Pistillum &  
stamens -

The stamens appear  
to be six in number  
sessile on the top of the  
pistillum, whose apex is  
three parted. Style flat,  
& twisted. The drawing  
is about the natural  
size.





Cyp<sup>us</sup>  
*acaule* & *parviflorum*.  
 June 1864.



A Hairs on the lower,  
 of *C. acaule* minute,  
 look like golden dots,  
 under a lens.



*Gypripedium  
parviflorum*

Western June 4: 1884

Upper Sepal, red brown  
on the outside, green yellow  
in the inside. Lower  
Sepal, yellow in the  
inside red brown on the  
two outside edges, yellow  
in the middle, & crad-  
ling the flower as at A.

The extremity is parted  
Variety, at Chapman's creek  
does not cradle the  
flower, but is twist-  
ed like the other.

Lower Sepal  
cleft at the end.

also  
a variety with the  
lower sepal quite  
clerk. near Cha-  
per's Creek.





*Vaccinium*  
*pauciflorum*  
Cranberry  
no flower.

From the Humboldt p. 22 July 15, 1869.



*Polygalaceae (Milkwort)*

Weston May 21: 1864.

*Polygala paucifolia.*

Fringed Wintergreen, (or more properly)

Fringed polygala.

A position of stamens

B. Pistil.

C fringed covering to pistil.

D Ovary.

E Scape of anthers, enlarged.

F Appearance of fringe. Mag. (purple with silvined points.)

Weston. June 23/65

*Stanceles S. pink & one,*

growing in very dry sand.  
leaves soft & pubescent.





72



*Pyrola*

July 15: 1869

*Pyrola*

July 15: 1869





Salicaceae.  
a Poplar or aspen, 31/III/68  
one of the earliest to flower.

762  
Aristolochaceae Birthwort family. Sep. 359. Gray's bot.

"Asarum canadense"

"Wild ginger."

Watn 22<sup>nd</sup> May 1871

W. Holley's woods.





$\frac{1}{5}$

Leaf scar



Choke Cherry

Bass Wood

Red Maple

Wild red cherry.  
Fruit & leaf buds. A silver  
scale on the young wood.

Weston March 5, 1869  
Size of nature.

Ala

$\frac{1}{5}$



Weston March 5: 1869  
Oak, from the plains at Carlton  
young twigs from old & young trees.  
Natural size.





Weston March 5/69  
 size of leaf -  
 Black Alder.

apparently blossoming  
 with the Therm. 10° below zero.  
 To day. & deep snow.

Bud &  
leafscar.

$\frac{1}{8}$

Day 3  
wood

Wester March 5. 69.  
White Walnut or  
Butter Nut. Nat. size.







Wetmore.  
March 5: 1869.  
Elm.

Dec: 10: 1867. *Myxococcus* in  
hole in the ice. Cattle guard near Station  
1/4 inch objective.

A cell dividing.

more advanced thread



B

B early or young thread



C

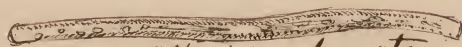
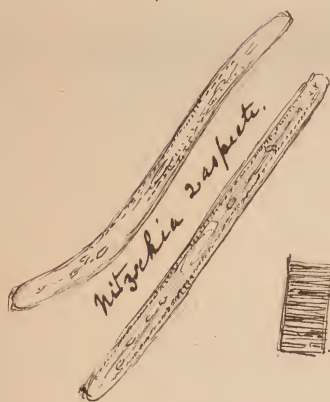
C young or pale  
coloured thread



Brought home as bits of ice.  
As seen Dec: 20: when  
cut out of solid ice &  
powdered. Freezing seems to  
have made the cytofast or nucleus  
circular, much as glycerine & spirit does.



Weston 21/7/88. with  $\frac{1}{4}$  obj. & A. eye piece.



*Nitzschia elongata*, Hassal plate  
en. 12.



*Planoconvexa*



(Hass 102.)  
*Maricula*  
*austriaca*



*Cymbella*?



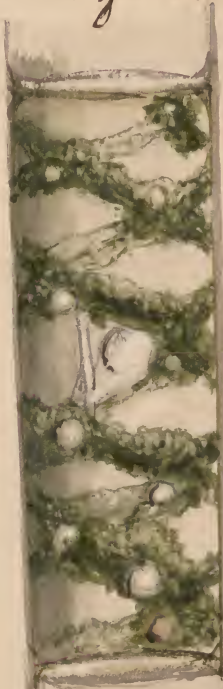
Diatoms & Desmids surrounding  
a caddis worm's case, w<sup>h</sup> came  
up with Alga in about 3 feet of  
water, under 15 in. of ice at the Hammer



A

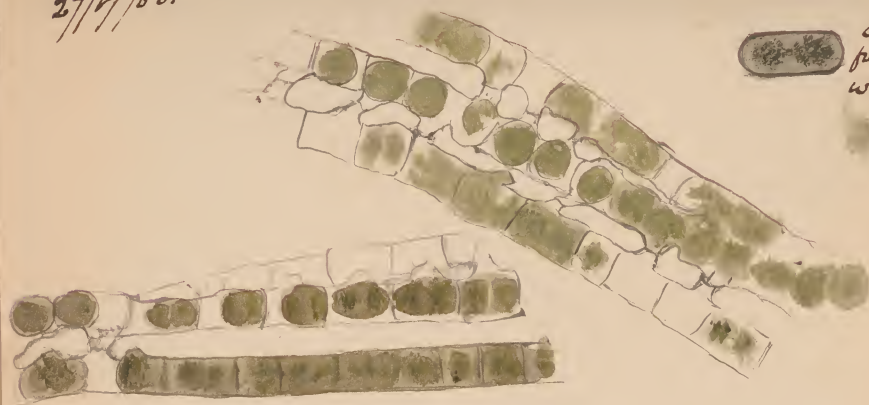


A These are as nearly like  
what seems to be a normal  
condition, or natural state  
as I can draw them.

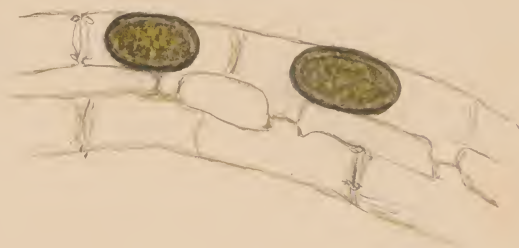


Greatly magnified according  
to the general proportions.  
Drawn without the Camera.  
23/7/88. Not yet been frozen.

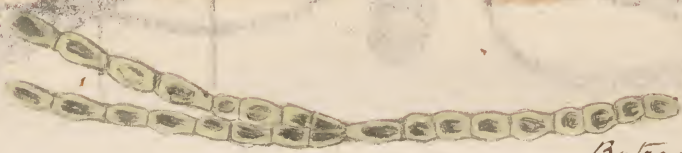
*Zynderidea* in Conj on both sides. (with  $\frac{1}{4}$  inch obj & A 2x piece  
in Railway Ponds.  
27/V/68.



one cell as  
frequently seen  
when separated.







Wilton.

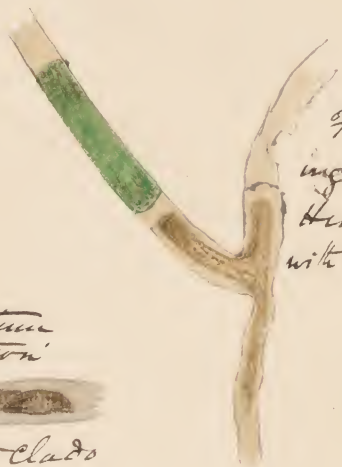
13/2/88

Batrachospermum  
Attached to a bit  
of wood in a pool  
near the river. with  
 $\frac{1}{4}$  inch obj. & A eye piece



Wilton  
15/2/88.

Surirella  
from the Lumber.  
with  $\frac{1}{4}$  inch.



From gathering  
at the  
Lumber  
with  $\frac{1}{4}$  inch.

Eucyoneura prostratum  
from wharf at Union Station



five samples are attached to Clado-  
poda on the wharfs. with  $\frac{1}{4}$  inch

the hairs of Deutzia scabra.

Muskegon, 8/17/68. (obtained at the little bridge at the Muskegon) *Zygogonium* or *Mougeotia*.  
A cell covered with a kind  
of *Kleinellus*.



A cilia playing freely  
they contract ~~and start back~~ or start  
back & elongate like vorticella.

These three shot back &  
projected themselves in  
the same spot, dozens of times  
cilia playing all the time.

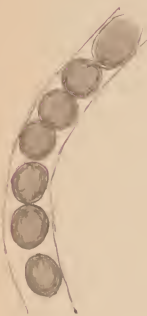
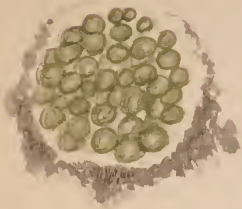


found as pieces of green or light brown jelly generally  
shapeless but longer than broad lying on the sur-  
face of the water in the Muskegon Bay. Filled with  
the *Vorticellae*? & a few diatoms.  
March 25/69 find them to be *Ophydium versatile* see Mic: Die in Co.

The hairs of *Deutzia scabra*.



*Zynderidia* in conj. & other alga V: V:  
 Railway pond 23/10/08. with  $\frac{1}{4}$  in & A ~~by~~ *Egyptia*



first appearance of  
*Conjugation*.



*Barn Swallow*




*Robin*



Dull yellow  
 bird,

22

always in  
about half way



Different forms of endochrome assumed by a *Zygomace*, found frozen in ice & left in a bottle with water for two weeks - Abnormal?

Yellow Green.  
Softest Edges

A

Insects

Vorticella

A

A

A

B

21/5/68.

B. Cells nucleated with bright green nucleus, seemingly in an old cell of some *Siphonoca*. very green.

The hairs of *Deutzia scabra*.



Vol. IV 25/IV/68.

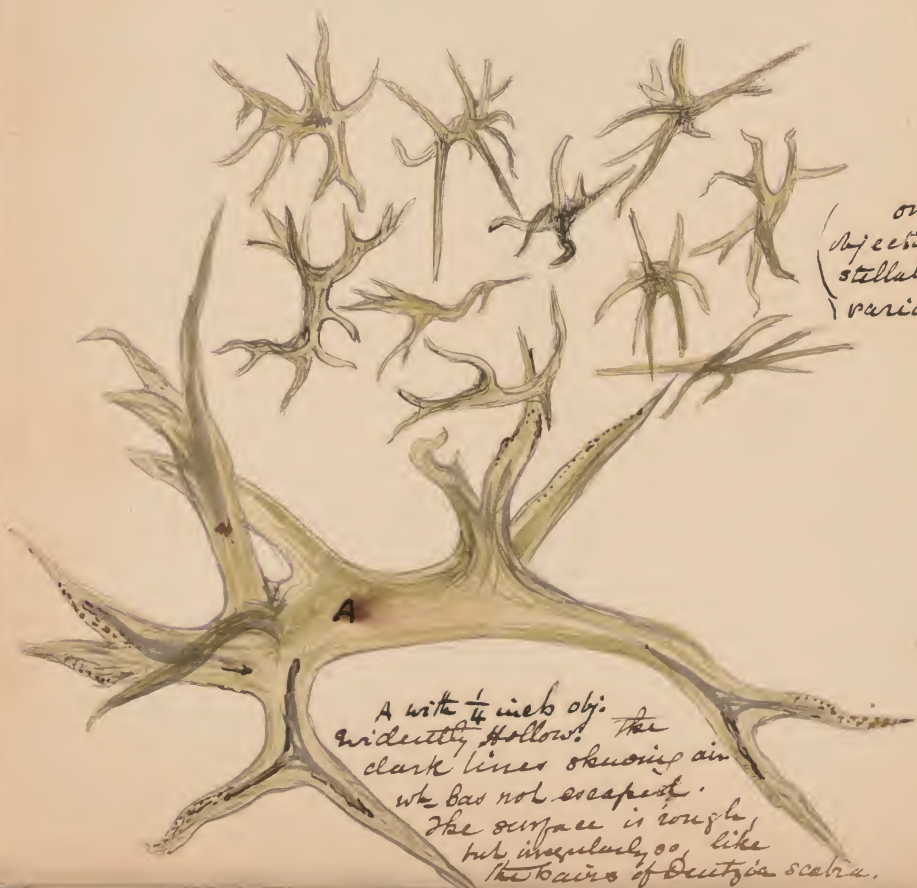
Drawn with one inch obj. & (a) eye piece.

Stellate ~~and~~ bodies in leaf of an aquatic plant.

*Nymphaea lutea*? *abba*? or, *affinis* [unclear] pp. 362 "*Nymphaea lutea*"  
See Hairs in Micrographic Diet.



as seen in  
portion of leaf soak-  
ed in liq. Soda; but  
not displaced.



one inch  
object, single  
stellate bodies of  
various shapes.

A with  $\frac{1}{4}$  inch obj.  
evidently hollow. The  
dark lines showing air  
we had not escaped.  
The surface is rough,  
but irregular, oo, like  
the hairs of *Deutzia scabra*.

705  
a terminal piece  
mag<sup>d</sup>. skewing the  
contortions —



Weston 25/iv/68. (E. Mearns Sen. du. old mill head.)  
Growth, on end of twig of black ash. Apparently from  
insect injuries. Most fantastic shapes. About one third  
the natural size. some on the same tree four times  
as large.



Feb 1: 1869

Taken out of a lot of Locust wood.  
*Xyleutes Robinia*. Harris pg. 413.



Western Feb 1: 1869.

Found in the Swamp  
 on the S.E. side near the  
 ditch. a shrub about 8 feet  
 high covered with berries.

Weston 24<sup>th</sup> May 1871





*Drosera*,  
or  
*Succ. dew.*

from the *Membr. pond* July, 15: 1869.  
~~Scorpa~~ was not long in the sun in p-



*Calyx* six deep  
petals 6.?



*Membr. pond.*  
July, 15: 1869  
Spike about 6 in long  
all bright yellow.  
Plant about 15 in high.



*Pharus 27/10/00*  
*Diapentaleia plumosa?*  
 with 1 inch sp. & A 2/3 price.



(B) with 1/4  
 inch sp. & A 2/3 price.

(B)



Winton 3/iv/68.

not an uncommon termination  
to a spore bearing thread

A growth of *Vaucheria*  
*racemosa*.

3/iv/68.

with 1 in & Kelman,

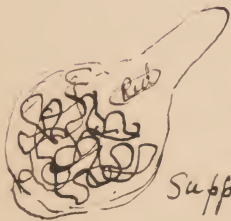
A

B. with  $\frac{1}{4}$  in obj.

25/iv/68.

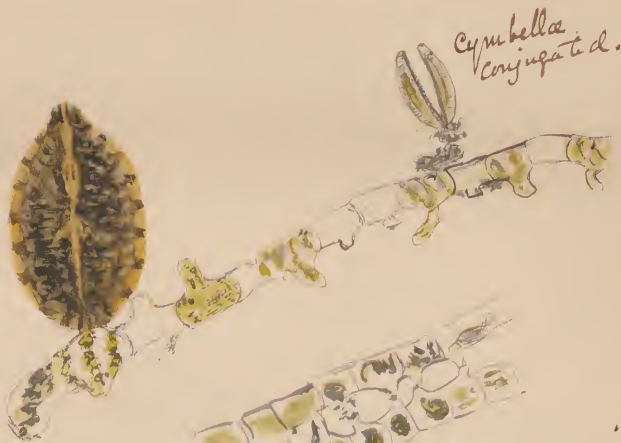
(13) *Euphorbia* *Daucus* of  
(15.) *astasiaca*, Mr. Oden sent the sample

to me. Innumerable bright green granules  
forming a bright green mass, in ditch in  
Toronto. Each has a red spot & dark  
lines in it, & is variable in shape.  
He says they agree with Pritchard's genus  
*Euglena* See Micro: Dic. pg 75. & plate 23 fig 16.  
Name probably from *eu*, pretty & *glos*, pl. varieties,  
in singular star, bright, light. They are in-  
deed beautifully bright & very curious.

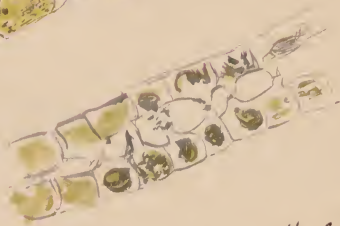


Supposed forms if enlarged

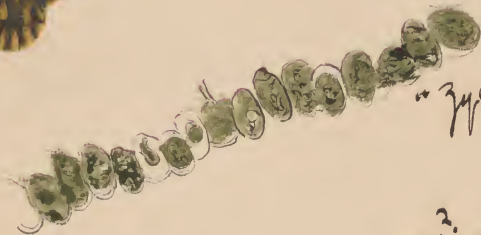
25/4/68. Canadian Leach's from  
the Humber marsh.



*Cymbella*  
*conjugata* d.

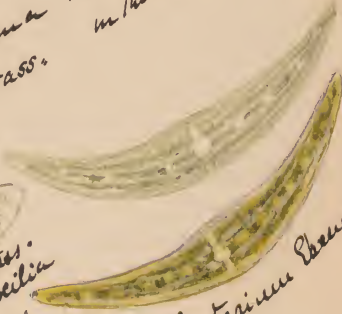


"*Zygnuma* malformatum". (Kelley)  
in the Humber marsh 25/4/68  
Hass.



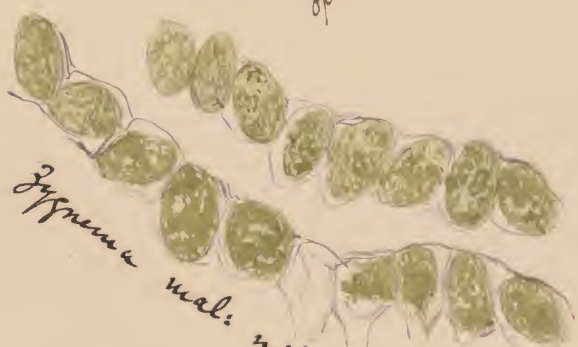
*unidentum*?

very active frustules.  
none at rest, & cells  
all gone.  
*Ophrydium* *viridula*.



*Closterium* *baurlingii*

*Closterium*  
*moniliferum*?

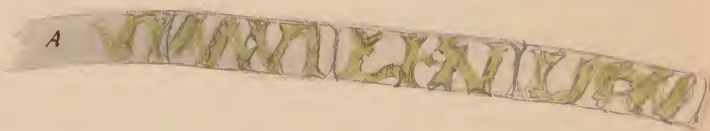
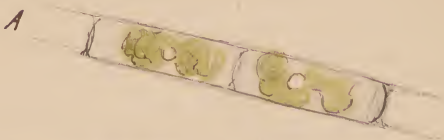


*Zygnuma* mal.  
with 4 inch

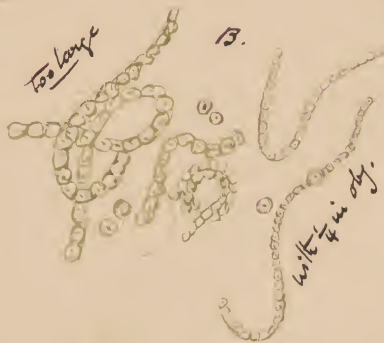


Weston, 15/iii/88.

A Alga, frozen into a block of floating ice



patches as seen on the bottom.



B. *Nostoc commune*? 17/iii/88.

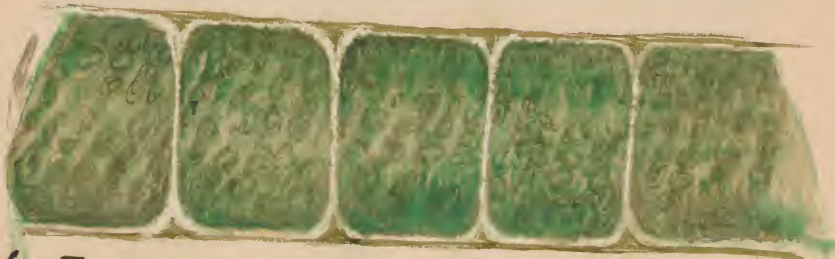
In the ditch on the G. D. R. Road.

This belongs to gravelly soil

no doubt it grew last autumn & now appears covered with water.

See Hassell pg. 288 & 289; Plenty of enlarged globules

(C)



(C) The *Zygnema* from the cattle guard on G. D. R. as seen with a  $\frac{1}{4}$  dy. when just thawed 19/iii/88. It had been frozen solid for 3 or 4 months. (Too blue it is yellow). The alga was a good deal broken up, no long threads. none more than an inch & generally not more than  $\frac{1}{2}$  to  $\frac{3}{4}$  inch long.

*Ancylina  
impalpabilis*  
Hassal pg. 253



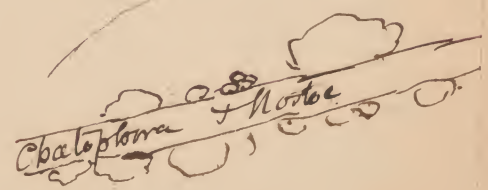
*Chatophora* (chulora?)



*Closterium trachelia*  
Hassal pg. 375



*Trigonocypris  
tricornis.*  
Hassal pg. 357.



*Chatophora* + *Notoc*

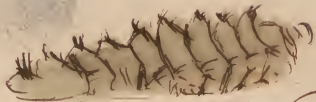
June 28: 1876.

From the little ponds on the Railway.  
in the circular morsels attached to the old grass &c.



Weston Aug 30. 1866.

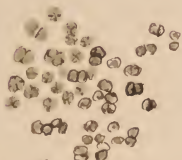
Elm saw fly,  
feeding on  
Willow  
30/7/66.



Superior  
feeding on  
willow  
30/7/66.



Algae from  
the Credit, 31/7/66.  
at Springfield.  
with  $\frac{1}{4}$  objects  
dark green with  
a white edge &  
white line between  
the cells.



cells with  $\frac{1}{4}$  inch.

Ulva bulbosa

Well described pp. 296  
Hassall Vol. 1.

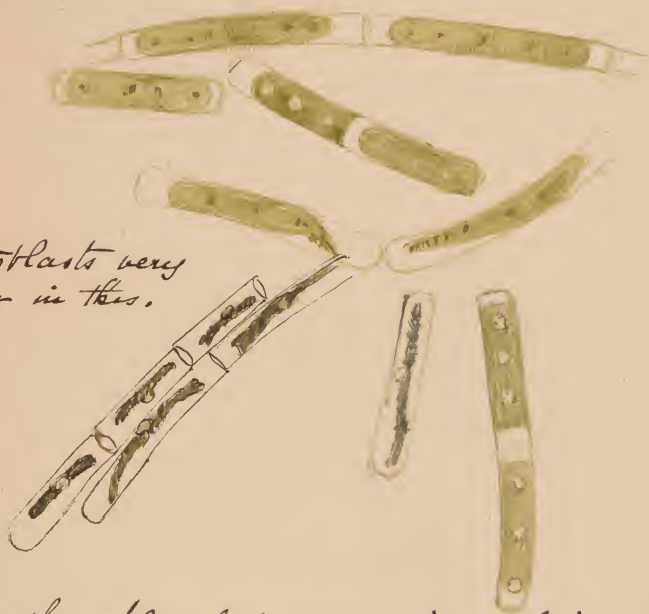
natural eye

31/7/66. General appearance

Credit, Springfield. still water. consisting  
of small cells light yellowish green.  
springing from bits of bark & wood.

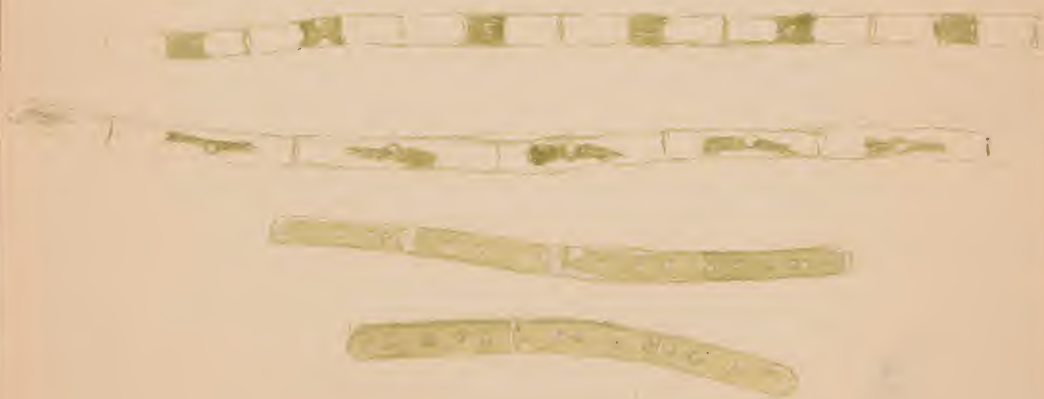
19<sup>th</sup>/68 Alga taken at the edge of the swamp or boggy place.  
 could it have grown this spring. All ice round  
 it, & lying in holes just as it did last autumn.  
 Is it not ~~Mougeotia~~ <sup>Mougeotia</sup>? other varieties with it  
 & diatoms.

Cytoplasts very  
 clear in this.



when the chlorophyll draws into a line it is much  
 darker & one nucleus to be seen.

Is it a *Mougeotia* not conjugated? In such case it has  
 grown this spring in about 8 days of weather about 32°  
 & may be going to conjugate.





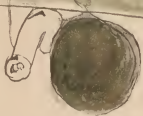
Weston 5/iv/88

A. *Cyrtolista*.



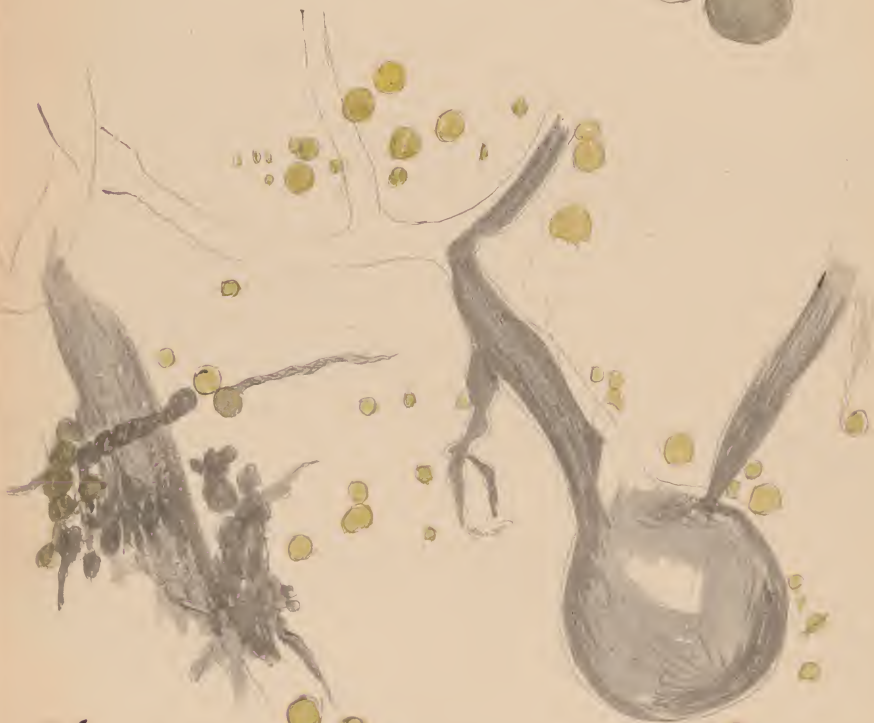
B.

see slides Nos.  
846, 853, 854, & 855,

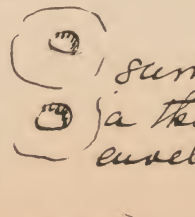
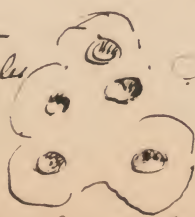


This *Vaukenia* does not appear to  
be described by Russell -

B.



This is found surrounding what appears  
to be a bunch of eggs, but much greener in gene-  
ral colour, some in the aquarium for a fortnight,  
gets still greener, & shows a white spot  
by candle light, like other eggs. General mass  
is of this shape -  
full of night green uicli  
& long fungus like  
protr. Is it *Aeklya*  
*prolifera*?



surrounded by  
a thick green  
envelope

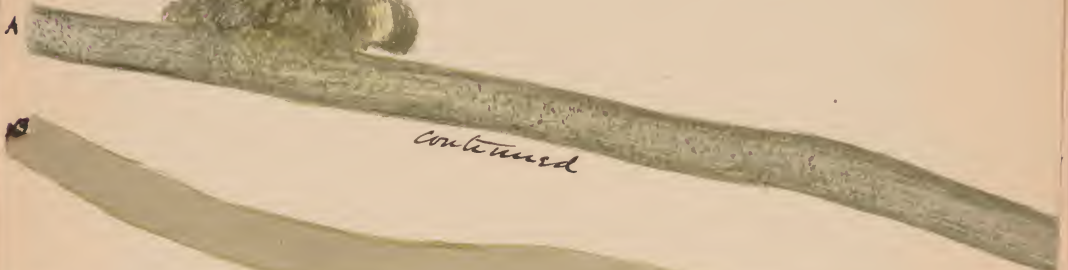
(May 15: 1888 they are lizard eggs.)

Ramosa.  
*Vaukeria. semilis*, as seen 9/11/68  
 in a warm aspect, a diteto with 4 in water & grain below.  
 with 1 inch obj. & Helner eye piece.

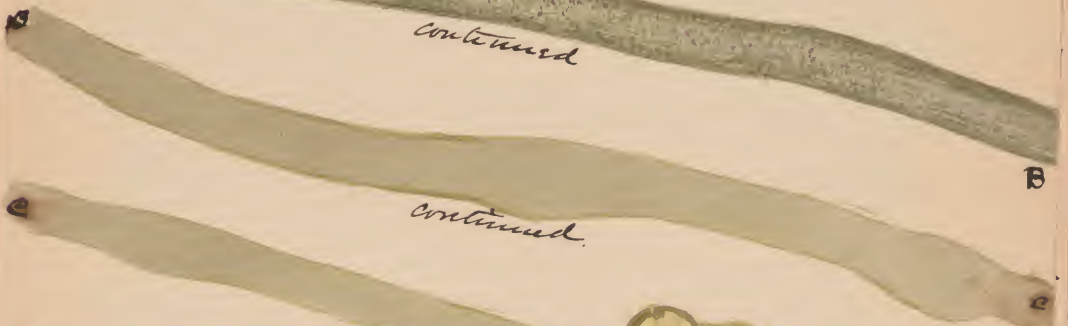
(No 1)



Termination of Syphon.



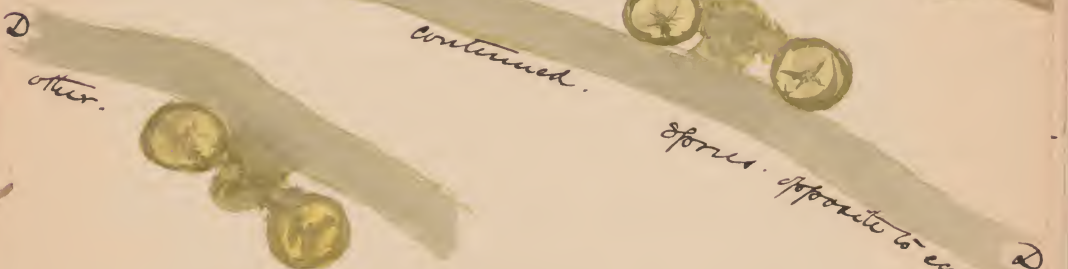
continued



continued.



continued.



other.

Spores. opposite to each

Third condition of the Vercicles.



causosa

(No 2.)

Vauckeria sessilis? showing young hauch, & formation  
of spore externally 31/11/68. Ineb obj. & A eye piece.



B. Second process in formation of. vesicles.  
the lateral ones are seen on each side.

It seems to me that the antheridium protrudes  
more or less from the surface of the siphon-  
or thread. Shortly two or more sporangia pro-  
trude from the sides, as they extend fur-  
ther apart, the antheridium seems to be  
much bent, scarcely visible, would not be  
detected by a casual observer. The next  
step is after this date. So far this alga  
has grown since the spring opened. It has  
been well nigh frozen every night. —

*Vaucheria. <sup>ce</sup>raucosa.* 11/10/88. (X23)  
*semitis.* 3  
 same plants, taken from the same  
 ditches as. 3/11/88. *V. caucosa* in  
 sandy ground, *semitis*, low clayey.  
 thin. Obj. & Helms eye piece.



B.

B. These terminations sometimes occur.  
 Have no description of them?.

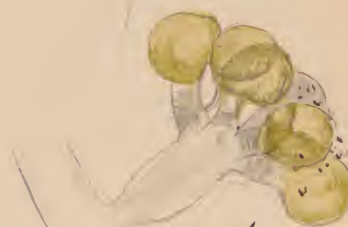
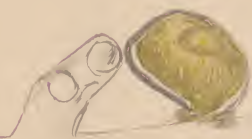


appearance on becoming  
 older.

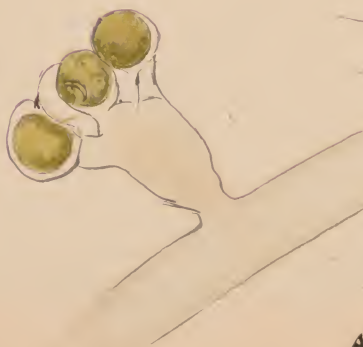


seen from above.  
 & somewhat pressed  
 side by glass cover

*V. semitis*



right granules, looking  
 as though forced out in  
 one direction



A

A fresh obj. & B. eye piece.





From the number 29/8/88-  
 appears to be *Cladophora crebula*  
 The specimen is old & indistinct.







June 30. 1864  
*Calopogon pulchellus*  
White variety. (very rare)

4 bunches of farina  
like anthers. (enlarged.)

stamens &  
pistil.



Petal (magnified)



anther



a single  
berry in each



seed pod



*Calopogon  
proteranthus*



A club shaped  
prige.

*Arethusa bulbosa*,  
June 20: 1864.

Flower of  
*Collaethiza  
mullifera*



anther

4 celled

& very large.

*Pyrola, uliginosa.*



Pod two-celled



Weston, June 4: 1884.

*Clintonia borealis.*  
or  
Wild Lily of the Valley





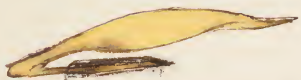
Pod incurved on the sides.  
Magnified



Nat size.



Pistil.



Stamen adnate to perianth



Seed pod.



*Moulinaria perfoliata*.  
Weston May 25: 1864  
Smaller Bell-work.



perfoliate  
leaf

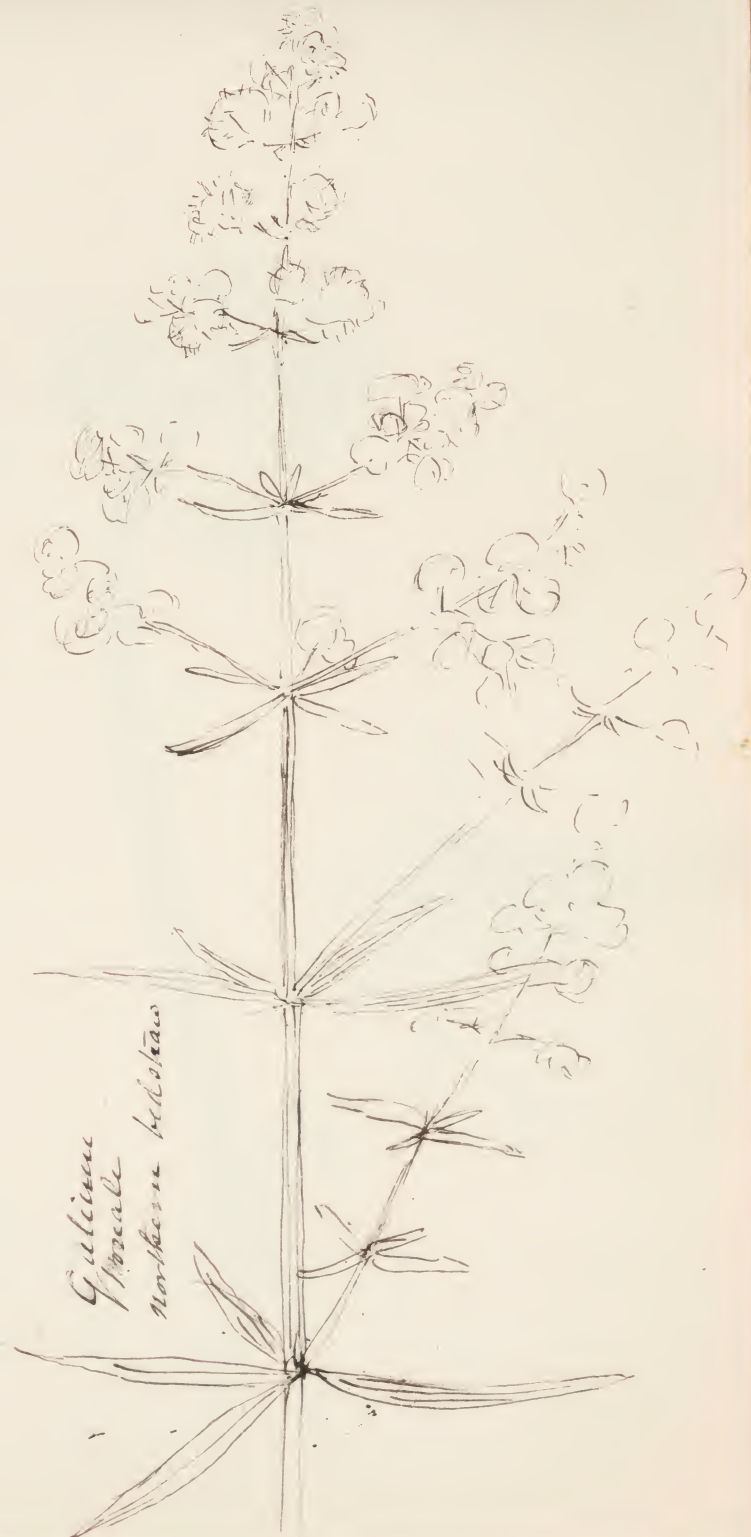
Edge of leaf quite white  
when dry.



Weston.  
July 1: 1864



*Mitchella*  
*repens*  
Partridge berry.



*Galium*  
*florale*  
northern bedstraw

*Saxifraga Virginicensis*, or  
Early Saxifrage. Gray pg. 148. Wood, pg. 278

white, bright yellow  
anthers  
size of flower

Shape of Calyx  
enlarged. green.



Stamens 10  
anthers deeply divided.  
Pistil - bipartite -

dark  
green with  
a tinge of red  
at the edges.  
Largest size  
of leaf with  
6 teeth on each  
side

Stems of plant pinkish  
May 13: 1884. Weston.



Root, a short thick  
very numerous black  
fibrous threads, growing  
in the driest sand.





May 21: 1864 (Weston)

Coptis trifolia, (Three leaved Goldthread)

Leaves shining & evergreen.

Curious petals, consisting of 5 or 7 club shaped hollow ended processes. Seeds in pods extended.

Roots very numerous, even size, & bright yellow.



20/1/68.  
A small grey bird.  
with white heart



building in broken  
trees in the garden.  
delicate colour than.

25/1/68 in the 'humber' marsh



25/1/68 in the 'humber' marsh.



25/1/68 on rotten wood in the swamp



Weston Oct 27: 1868.  
*Closterium acerorum*? Has:  
 near Edin & Seal's letter.

The contents of this glass did *Closterium*  
 were squeezed out, when trying to separate  
 it from surrounding matter.

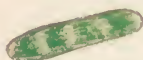


Is this a *Scutigera*?

plentiful in Seal's creek.  
 4/xi/68. Perfect chains of it.

a small  
 anther capsule  
 in the disjunct.  
 hanging about.

with  $\frac{1}{4}$  inch.  
 4/xi/68.



*Syncleridea* 4/xi/68.

Weston 9.7.69

*Paramecium*  
*aurelia*  
 dividing

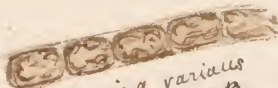
$\frac{1}{4}$  inch with Beye piece  
 brought by W. Doler



growing alga.  
 9.7.69

$\frac{1}{4}$  in 4 B eye piece

Obtained from Brinkley's Spring, Aucaster.



*Melosira* various  
 9.7.69.  $\frac{1}{4}$  in 4 B.



Weston  
 all orange  
 inside another  
 orange. Given  
 me by Mr. Cheek  
 by Jan. 28/69.  
 The pearl had  
 been taken off

24/5/66

looking down on petals or  
slipper.

front view

under  
neath

average natural size

under side  
of slipper -

two anthers  
enclosed in  
a covering.

Pollen masses 4 each divide  
the into 2 flat leaves.  
uncovered.

oo  
oo oo

covered

growing on  
the thickest places  
of sphagnum. Root  
close to the top.

Calypso borealis.

In Dennis' swamp.

24/5/66.

flav  
Hobbs  
with thick  
of setae



Wetmore, 4/17/68  
*Corallorhiza Maeraei*?  
orchid faun.: Gray 453.  
(Coral-root.) natural size.



flower  
pressed open



side view of  
seed pod.

Root.



Preston Sept. 1888





Pui



plant 3f high.  
 long leaves like grass  
 petals 6 with 2 waxy spots  
 depressed a little.  
 anthers quickly deciduous.  
 stamens adhering to petals  
 at the base, but adnate to  
 the petal wh. is 3 legh. &  
 wide at the base.

Petals & stam. white on the edges.  
 Dunder swamp July 1864.

*Zygadineus* (Zygoglyke  
 adn. a gland)  
 glaucus? or glaucum

pg 475. Gray.